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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/529,794

03/30/2005

Hiroshi Fukukita

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EXAMINER

CATTUNGAL, SANJAY

ART UNIT

PAPER NUMBER

3768

MAIL DATE

DELIVERY MODE

09/01/2009

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/529,794	Applicant(s) FUKUKITA, HIROSHI	
	Examiner SANJAY CATTUNGAL	Art Unit 3768	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 05/11/2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1 and 2 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1 and 2 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 30 March 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Arguments

1. Applicant's arguments, see Remarks, filed 05/11/09, with respect to the rejection(s) of claim(s) 1 and 2 have been fully considered but are not persuasive. Applicant argues that Weng reference does not teach any advantageous effects of obtaining an hyperbolic curve. Examiner would like to point out that for a 102 rejection only structural limitations have to be met, and according to page 1 of the remarks filed on 05/11/09 Applicant agrees that structurally Weng reference Figs. 3 and 4 are identical to the instant application. Weng reference teaches a means for deriving distance between source and target using the hyperbolic function (Col. 13 line 56 through Col. 14 line 5 and Figs. 3 and 4); and means for generating drive pulse for each of the transducers respectively (Fig. 3 and Fig. 4). As such Weng reference reads on all the limitations of Claims 1 and 2 and is made final.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claims 1 and 2 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to

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one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The phrase "less drop in sound pressure in short distances to provide high sensitivity" has not been described anywhere in the specifications and is considered new matter.

4. The term "less drop" in claims 1 and 2 is a relative term which renders the claim indefinite. The term "less drop" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite drop, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. The term "less broad" is vague and makes the claim indefinite as its not clearly understood what is encompassed in the claim.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

6. Claims 1 and 2 is rejected under 35 U.S.C. 102(e) as being anticipated by U. S. Patent No. 6,719,694 to Weng et al.

7. Regarding Claims 1 and 2, Weng teaches an ultrasound diagnostic apparatus for delay-controlling the wave beams comprising: a means for deriving distance between source and target using the hyperbolic function (Col. 13 line 56 through Col. 14 line 5

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and Figs. 3 and 4); and means for generating drive pulse for each of the transducers respectively (Fig. 3 and Fig. 4). Furthermore the driving pulse of each transducer element is delayed, which inherently results in less drop in sound pressure in short distances to provide high sensitivity.

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claims 1 and 2 are rejected under 35 U.S.C. 103(a) as being unpatentable over Non Patent Literature titled "Improved Time-delay estimates of underwater acoustic signals using beam-forming and pre-filtering techniques" by Ferguson in view of U. S. Patent No. 6,719,694 to Weng et al.

10. Regarding Claims 1 and 2, Ferguson teaches an ultrasound diagnostic apparatus for delay-controlling the wave beams comprising: a means for deriving distance between source and target using the hyperbolic function (Fig 1 and page 238 last paragraph); and means for generating drive pulse for each of the transducers respectively (Fig. 1 and Page 238 last paragraph.). Furthermore the driving pulse of each transducer element is delayed, which inherently results in less drop in sound pressure in short distances to provide high sensitivity.

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11. Ferguson does not expressly teach that the transducers elements form a convex shape.

12. Weng teaches that the transducers can form a convex/parabolic shape (Col. 13 line 64 through Col. 14 line 5 and Figs. 3 and 4).

13. It would have been obvious to one of ordinary skill in the art at the time of invention to modify Ferguson such that the transducer array could be a convex array as taught by Weng, since convex arrays are well known in the art, and the formula for calculating distances, from the target tissue to the transducer using hyperbolic functions would remain the same for linear and convex arrays.

Conclusion

14. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

15. A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

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16. Any inquiry concerning this communication or earlier communications from the examiner should be directed to SANJAY CATTUNGAL whose telephone number is (571)272-1306. The examiner can normally be reached on Monday-Friday 9-5.

17. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Long Le can be reached on (571) 272-0823. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

18. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

SPC

/Long V Le/

Supervisory Patent Examiner, Art Unit 3768